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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,546	08/09/2001	Toshiaki Takase	Q65791	1990

7590 05/24/2004

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EXAMINER
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JUSKA, CHERYL ANN

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/924,546

Applicant(s)

TAKASE ET AL.

Examiner

Cheryl Juska

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 5-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-9 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 3,10 and 16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/14/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to After Final***

1. In view of applicant's response to the Final Rejection of January 5, 2004, filed on March 3, 2004, the rejections of said Final are hereby withdrawn. Specifically, the 112, 2<sup>nd</sup> rejection is withdrawn due to applicant's arguments. Additionally, the 103 rejection based upon Aikawa (US 6,284,680) is hereby withdrawn due to applicant's statement of coassignment of the present application and the Aikawa invention according to 35 USC 103(c). Furthermore, the prior art rejections based upon Ohta (US 6,605,348) are hereby withdrawn due to applicant's perfection of the foreign priority date of August 10, 2000. However, a new ground of rejection is set forth below.

### ***Claim Rejections - 35 USC § 102/103***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1, 5-9, and 11-14 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 834 936 issued to Ashida et al.

Ashida discloses a nonwoven fabric for a battery separator comprising inorganic fibers and/or organic fibers. The inorganic fibers, such as glass fibers, have a diameter of 3  $\mu\text{m}$  or less and are present in an amount ranging from 20-80 wt.% (page 3, lines 9-10 and 14-15). The organic fibers may be in strand form or at least a partially fibrillated form (page 5, lines 47-48). Preferred strand fibers include polypropylene fibers (page 5, lines 51-58). Additionally, binder fibers, such as polyester or polyolefin fibers, may be included in the nonwoven (page 3, lines 31-33). The thickness of the nonwoven fabric is preferably in the range of 10-100  $\mu\text{m}$  (page 7, lines 13-18). The void content of the nonwoven is preferably in the range of 35-80%, more preferably 40-65% (page 7, lines 43-44). In one embodiment, a nonwoven comprises 40% fine glass fibers having a diameter of 1.0  $\mu\text{m}$ , 30% polypropylene fibers having a denier of 0.7 (i.e., about 9  $\mu\text{m}$ ), and 30% polyolefin binder fibers (page 10, lines 50-58).

Thus, Ashida teaches the invention of claims 1, 5-9, 11, and 13 with the exception of the claimed (a) apparent total surface area, (b) uniformity index, and (c) Young's modulus. However, it is reasonable to presume these properties are inherent to the Ashida invention. Support for said presumption is found in the use of similar materials (i.e., fine fibers, high modulus polypropylene fibers, and binder fibers) and in the similar production steps (i.e., formation of a nonwoven material with binder fibers) used to produce the battery separator. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In the alternative, the claimed properties would obviously have been provided by the process disclosed by Ashida. Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this

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rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

Therefore, claims 1, 5-9, 11, and 13 are rejected as being anticipated by or obvious over the cited Ashida reference.

Similarly, with respect to claims 12 and 14, it is reasonable to presume the claimed pore size and tensile strength properties are inherent to the Ashida invention. Support for said presumption is found in the use of similar materials (i.e., fine fibers, high modulus polypropylene fibers, and binder fibers) and in the similar production steps (i.e., formation of a nonwoven material with binder fibers) used to produce the battery separator. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 495. In the alternative, the claimed properties would obviously have been provided by the process disclosed by Ashida. Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102. Therefore, claims 12 and 14 are rejected as being anticipated by or obvious over the cited Ashida reference.

#### ***Claim Rejections - 35 USC § 103***

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the cited Ashida reference in view of EP 848 436 issued to Gomikawa et al.

Ashida is silent with respect to a hydrophilic treatment of the nonwoven. However, said treatments are well known in the art of battery separators. For example, Gomikawa teaches a surface treatment for a polyolefin nonwoven fabric (abstract). Said treatment may be a graft polymerization with acrylic acid or a sulfonation process (page 3, lines 27-28). Thus, it would

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have been obvious to one skilled in the art to employ a hydrophilic treatment on the Ashida nonwoven to enhance the wettability of said nonwoven. Thus, claim 15 is rejected.

### ***Allowable Subject Matter***

6. Claims 10 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 10 and 16, which limit the nonwoven to consist essentially of polypropylene fibers or fibers having a surface resin of polypropylene, are not taught or suggested by the cited prior art. Specifically, Ashida requires the use of inorganic fibers along with the polypropylene fibers.

7. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Although claim 3 is a product by process limitation, weight is given to the extent that the fine fibers are synthetic organic fibers (as required to make a bicomponent island-in-the-sea fiber). Ashida does not teach or suggest such a fiber in that the microfibers of Ashida are inorganic fibers.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl Juska whose telephone number is 571-272-1477. The examiner can normally be reached on Monday-Friday 10am-6pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached at 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



CHERYL A. JUSKA  
PRIMARY EXAMINER

cj  
May 19, 2004